GETTING TO GRIPS WITH DIGITAL PHOTOGRAPHY AND THE SEA & SEA DX 8000G

In The Beginning

I had very little interest in any form of photography until a few years ago when diving and the idea of taking pictures under water started to intrigue me.

About 4 years ago, I bought a second hand Sea & Sea Motor Marine II EX camera from a friend and added a strobe, macro and a wide-angle lens. I had the 'toy' but little or no real experience of photography, other than an automated compact land camera.

I found that the learning curve for underwater photography was slow. I went diving, took pictures, had the film developed and looked at the results. Typically a few acceptable pictures per roll of film and many thoughts of 'if only I had done this or that…' and by the next diving trip had only retained what seemed like a small residual amount of knowledge on how to take better pictures.

As time went by, the picture quality gradually started to improve and I discovered there were many aspects I needed to master as an underwater photographer. With hindsight and now that I have a digital camera, I feel there was some benefit in learning some of the basic principles about U/W photography through the medium of film. I only had 36 exposures at most on a dive so had to learn the art of composing a picture and becoming selective about deciding what was worth shooting in terms of the camera and operator being able to 'deliver'.

About 2 years ago, I took on the role as the South East Asia Correspondent for the BS-AC Travel Club. I was travelling & diving extensively in SE Asia and was writing dive trip reports and adding my own pictures. It was about this time I started to become self-critical and wanted to improve the quality of my pictures.

The lessons I had to learn were:

- Composing the shot
- Making best use of available light
- What the MM II EX could realistically deliver
- Patience and technique when photographing fish
- Spontaneous opportunities – being in the right place at the right time
- Ideally diving where only myself and my buddy on the dive site to minimise 'disturbance'

As regards photographing fish or any other animal at close range, I noticed that most animals seem to view the lens as the 'evil eye' and instinctively turn away or reduce their profile view to the camera to a minimum as if some sort of survival instinct takes over. This is where spontaneous opportunities to get a good natural close up shot of a fish are worth the wait.

By summer 2005 I returned from a diving trip to Indonesia and had many reels of film processed.
I reviewed the results and started to feel frustrated with the limitations of what I had produced. I had a choice- forget trying to improve my U/W photography and take the camera for a dive on the odd occasion or upgrade…..

Parting With Money

I decided to upgrade but was not convinced that current digital camera technology was ideally suited for underwater work. After doing some market research I decided that buying the most expensive digital camera rig was not going to improve my u/w photography to stratospheric levels of quality and creativity and that the technology was advancing so quickly that any digital camera considered state of the art today would soon become obsolete.

So, I decided to go for a digital camera that seemed to be in the middle range in terms of price and perceived performance.

Going Digital

After researching the market and deciding what I wanted from my next camera, I went for the Sea & Sea 8000G, housing and the optional wide-angle lens, lens caddy &YS-90 strobe (for night & UK diving).

In February 2006, I compiled a list of what I wanted to purchase and then e mailed some of the underwater camera companies I regularly see advertising in the diving press. The best price on offer came from Alan James Photography in Bristol. Heather phoned me up in response to my e mail enquiry and confirmed my decision to go for the 8000G was correct in terms of what I expected from the camera and where my current abilities were at and what my aspirations as a u/w photographer were for the near-future.

The camera was delivered within a few days of ordering. Heather even set the camera up for my first Intended dive with the new toy- UK green water. In addition, Alan James Photography also supplied a short form guide to set up procedures in green/ blue water, macro & night diving.

the new toy

I also invested in a 1 GB SD memory card, some re-chargeable Nimh batteries and a rapid charger that works on 100/230vac and from a 12vdc cigarette lighter socket in the car. One of the first lessons you will learn about digital cameras is that they devour battery power very quickly. I also bought a Pelican case to protect my investment.

The Benefits & Features That Influenced My Decision To Buy The 8000G Camera & Accessories

- I already had a Sea & Sea camera & Strobe. Although second hand, my trusty MM 11 EX had never let me down so I hoped the reliability factor should carry through to my next purchase.

- The image capture rate quoted as 0.1of a second. Apparently earlier/lesser digital cameras have a slower image capture rate, which can be a problem if your subject is moving. This does not mean that the camera is ready to take a picture again within 0.1of a second. The camera then has to write the image to memory and if using a strobe, the capacitors have to re-charge in order to deliver a flash. In reality, the camera may not be ready to take another picture for several seconds, depending on the file size (quality) selected and external strobe re-charge time.

- The 3x zoom facility. You have much more flexibility when composing a wide-angle shot or can't get too close to that fish without scaring it away.

- Feedback almost instantly (if you rely on the limited camera display) or more properly within hours once you are on the surface, in a dry location and can view the day's results on a PC or TV screen.

Now after a dive, I can still remember the circumstances on how I took the picture, review the results, even recall the camera settings if I have been 'experimenting' and learn the lessons of improvement for the next day. So in effect, I have found a way to accelerate my learning curve.

Obviously you can delete the pictures that did not turn out as expected, but with the 1 GB memory card remaining file space was not a problem. In the recommended fine mode, the camera can store in excess of 315 pictures.

- The macro facility. The specification advises that the camera can focus within 1 cm of a macro subject.

- The camera can also be used out of the u/w housing as a land camera.

- You can alternate between wide angle and macro photography underwater. With some specialist cameras, you have to decide if you are going to take macro or wide angle pictures before you dive and then stand by your decision.

- The camera comes with a basic editing software package. This is useful to a degree in 'cleaning up' and/or cropping downloaded pictures on a PC. However, Adobe Photoshop software offers a much better solution to 'cleaning up' images, including the option to add captions & a 'spot' tool. The basic Sea & Sea editing package also opens the TIFF files the camera produces in top quality mode (NC3264). However, there are a few quirks with editing these files (see conclusions-TIFF files).

  It should be pointed out that there is only so much cleaning and manipulation of images you can do before you turn the image into a form of pop art that Andy Warhol would be proud of. There is no substitute for composing and taking a good picture. I feel quite pleased with myself if I take a picture in to Photoshop and select auto-correct and nothing happens in respect of improvements to the picture !

- The camera comes complete with a USB download lead and AV lead that lets you display pictures from the camera on to a TV screen via the AV sockets found on modern TV's.
  This is a useful feature if on holiday and you want to see your pictures. The actual screen on the camera is very misleading when judging playback quality. I just tend to use the screen to confirm I have captured the shot. If it looks a half-decent picture it probably will be when you download the image.

Enough Chat, Lets Go Diving with The 8000G

February 2006 – Stoney Cove

The new camera arrives and begs to be taken diving. We (as in my diving other half) decide we should visit Stoney Cove on a Friday, as we need to test our diving kit before the diving season gets underway.

The water temperature was about 5degrees C and with few divers in the water, the viz was at least 10 metres. The first dive was with the camera housing only to ensure there were no leaks.

So far so good. End of dive 1 to a depth of 20 metres and no leaks or condensation noted in the housing or our dry suits.

We decided to visit the Stanegarth wreck on the second dive then return to the shelf for some shots of fish life and possibly some macro subjects.

All of the presentable pictures from this dive were made using the wide-angle lens and various degrees of zoom. I did try macro, but as I was getting used to the camera and wearing 5mm gloves, my degree of control was shall we say, still at the start of the learning curve.

Here is a selection of pictures from the second dive.

I think this is my buddy's way of telling me she's getting cold and wants to decompress on drinking chocolate

April 2006 – Angaga Island, Maldives

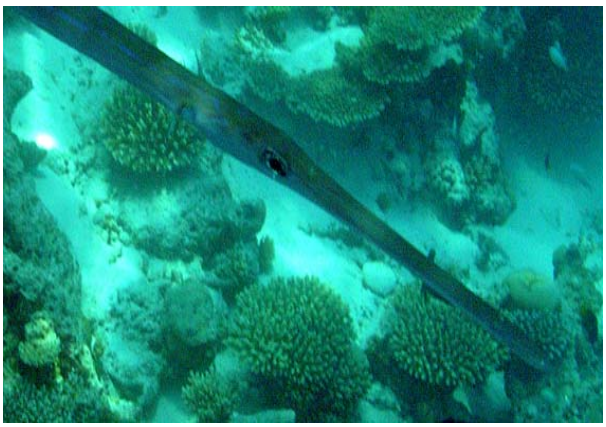
Easter time and it is time to get some sun and go blue water diving. I practiced my land photography with the camera and developed a laminated crib-sheet of the various settings I thought might come in useful on the Maldives trip.

Although not specifically chosen as a dive destination for this particular reason, we found Angaga to be a useful place for photography. There is a house reef with unlimited diving on offer & which is hardly used in the daytime as most divers go out on the boat. The house reef has a good variety of photography subjects to choose from in the 2-20 metre depth range.

Out on the boat, we found the dive sites were all very similar (here we go round the tila again, the tila again). On the plus side, the dive centre will allow experienced divers to dive as a buddy pair away from the guided groups, so you can go and find undisturbed parts of the dive site to practice photography.

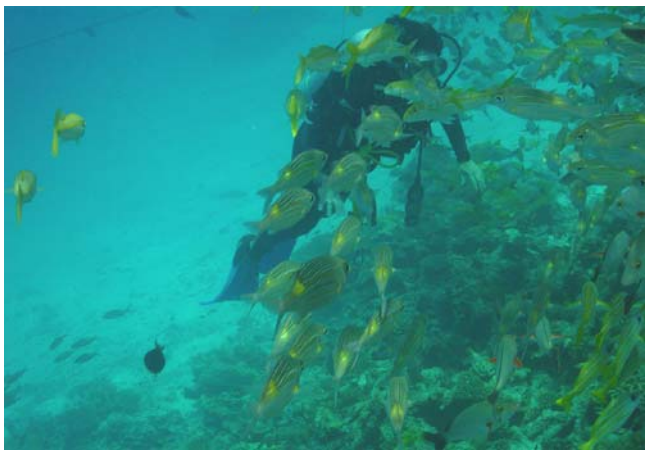
Here's a selection of photographs from the trip

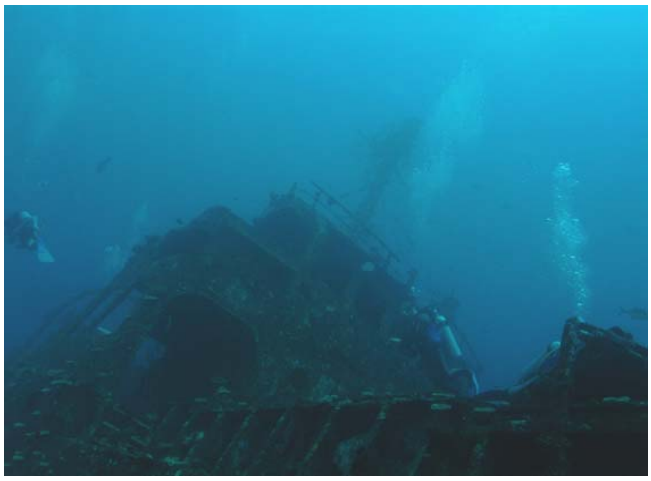
Example Pictures Taken With External Wide- Angle Lens

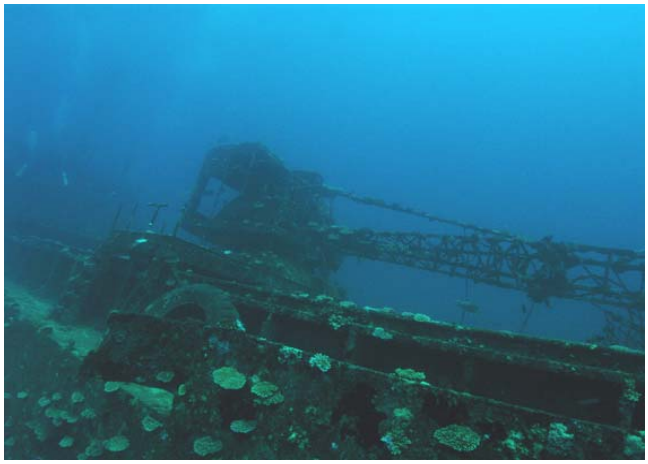


Macro Photography

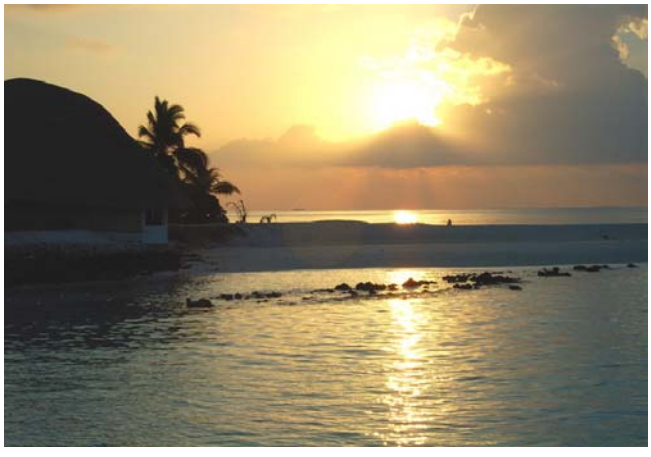
Divers & Wrecks







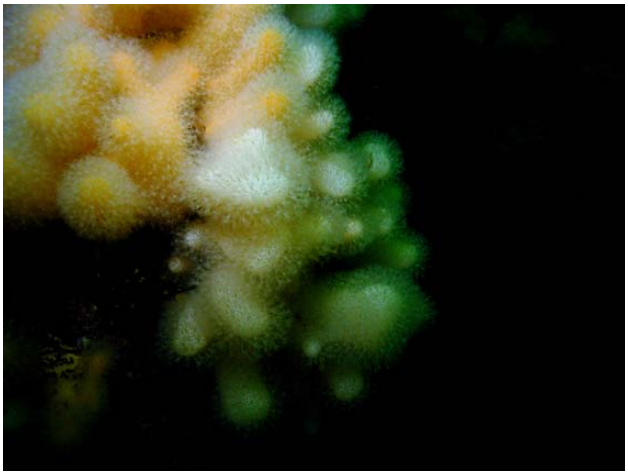
Land Photography

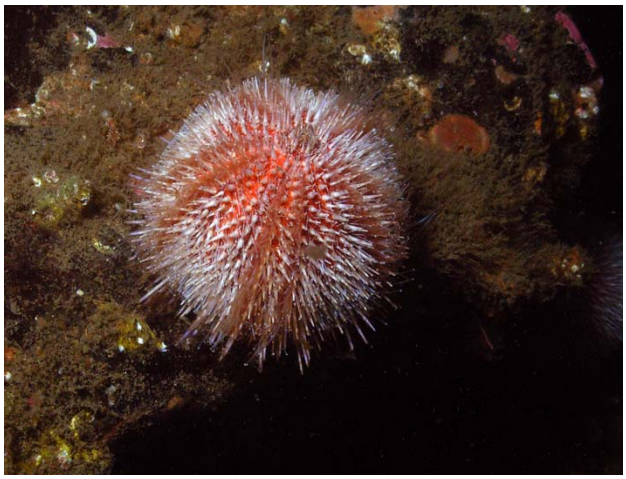


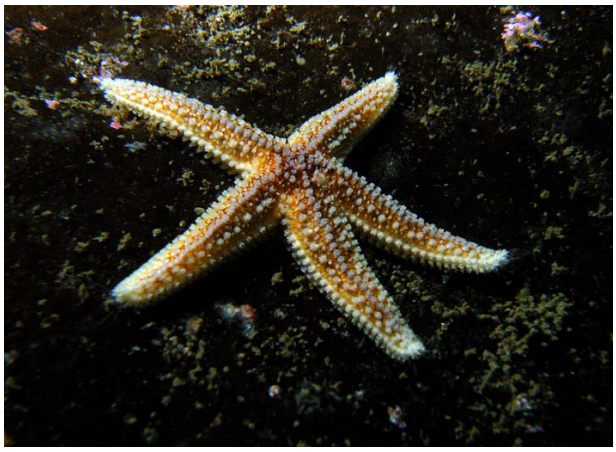
May 2006 The Farne Islands

We were invited as guests on a BS-AC Club trip to the Farne Islands. I had ideas about photographing seals as I have had some good results with the 35mm camera on previous visits to the Farnes. The reality was that the weather was not that good so there was little natural light penetration under water and the seals did not feel like playing with the divers. I had to limit myself to practising macro photography and various other common forms of inanimate marine life.

Here's a selection of pictures. The camera was operating in very gloomy conditions and the strobe was operating every time (unlike the Maldives where it seemed surplus to requirements on day time dives). The benefit of natural light can be seen by comparing these pictures with the first set of pictures taken at Stoney Cove on a sunny day.







Conclusions

My Impressions The DX 8000 G And Having Now Made 18 Digital Photography Dives

The Camera & Accessories

Quality And Ease Of Operation

The general quality of the assembled camera/strobe/base plate/mini-arm is good. Having used the camera, there are a few things that I feel could be improved.

It should be remembered that unlike the MM11EX, the 8000G has not designed as a dedicated underwater camera. It is made up of a digital land camera that is a re-branded Ricoh Caplio GX8 that then fits into a purpose-made housing.

For an independent land camera review visit:
http://www.letsgodigital.org/en/camera/user_review/ricoh_caplio_gx8/show.html

Fibre Optic Link to External Strobe

The first improvement I feel could be made is to the strobe firing circuit. The trigger is not via a cable but via a fibre-optic line that relies on picking up the internal camera flash via the housing. I don't have a criticism of the use of fibre-optic in principle, but I am not impressed by the way the fibre terminates by plug-in grommets at the camera housing and strobe head.

In the communications industry, fibre optics tend to terminate into a metallic screw or bayonet locking terminator which ensures the fibre is held and aligned quite precisely to enable the transmission of light. It's a shame Sea & Sea did not make the fibre link terminations more robust.

There is a noticeable 'failure to flash' instance or delayed flash from the YS 90 strobe on my camera when diving in low light conditions. This means that some pictures are at best, severely underexposed or just don't capture. This failure or delayed flash occurs maybe 1-2 times on a dive.

Consideration to some neater form of routing should also be made as regards the routing of this fire-optic cable. It basically just runs a direct route with minimal support/protection from the camera housing to the strobe head and could be susceptible to damage.

Holding The Camera Underwater

The older sea-arms were a lot longer than the mini-sea arm and seemed to have a section that doubled as a decent place hold the camera. The mini-sea arm is just that… mini and relatively slim. The first section does not really double as a hand grip, unless you have very small hands and are not wearing gloves.

Removing The Camera From The Housing

This can be quite tricky as there are no obvious parts of the camera to uniformly retract the unit. Maybe Sea & Sea could produce a gizmo similar to the O ring extraction tool ?

Sun Visor to Screen Display

A cheap rubber effort that does not easily fit on to the guides on the housing. On one of my first dives with the camera, another photographer who had obviously learned the hard way, suggested I tie a small length of fishing line from the eyelet on the sea arm base to the eyelet on the rubber sun visor as I was informed that he would put odds on me loosing the visor underwater before the week was out.

I have noticed that other digital cameras have a rigid sun visor with angled sides that looks good and seems to fit properly.

I found that it is not necessary to use the sun visor in UK water.

Best Quality Mode (NC 3264)

This is the highest quality mode and produces TIFF files of 16-22 mb rather than the more usual jpeg format. With a 1GB SD card you can take in excess of sixty pictures in this mode. I have not managed to use this format under water yet. The TIFF files the 8000G produces are a bit 'quirky' in that Photoshop CS does not open them. I have only found out a solution to this problem since my last diving trip.

The way around this problem is to open the files in the PC software that comes with HP printers (I have a photo smart 8250). Re-save the pictures as TIFF format and then you will be able to open the files in Photoshop and edit as required.

I have taken a few land photographs ie: macro shots of flowers. There is a noticeable quality improvement over the recommended F 3264 jpeg setting. I am hoping this factor enables even better quality under water pictures to be produced.

F stops in manual mode (A/M)

I'm still getting used to having just three f stops to play with (2.5, 4.7 & 8.1). Maybe you don't need as many f stops to choose from with a digital camera ? I doubt it some how. The laws of optical physics can't have changed that much over the last few years.

Camera Adjustments

There are many more adjustments than my MM11EX so some form of water-proof crib sheet was required as a set up reference. Remember to re-check the settings if you decide to use the 8000G as a land camera between dives. Alan James photography did provide set up instructions for green/ blue water conditions. I decided to re-write in to a format that I found easier to use as a (waterproof) reference guide. I have attached a copy at appendix 1.

I spent a few hours in the garden photographing plants and flowers in varying light conditions so that the camera controls and settings became easier to understand and operate. This was a great advantage before actually taking the camera on a dive as the last thing I wanted was to become too pre-occupied with the camera settings under water which would have wasted valuable bottom time and could have compromised diver safety.

Conclusions On Quality Of Photographs

Overall, I am impressed by the results produced by the 8000G.

Macro photography is not as straightforward as using a 35mm camera with dedicated macro lens and a framer. I miss setting the f stop to f22 as I did on the MM11 EX and going in to point and shoot mode and getting some excellent results.

The 8000G seems to struggle to auto focus in macro. I find myself focusing the camera some distance from the subject to get the 'green cross' on the LCD then slowly moving the camera towards the subject. I have heard some divers also use a small torch fixed to the strobe to illuminate macro subjects in an attempt to over come this issue. I have yet to try this method myself.

Wide angle photography (using the optional WA lens) Seems to be easier to produce better images with the 8000G than my MM11EX with a W/A optional lens. Wide angle work is my favourite type of u/w photography so this came as a pleasant surprise.

Movie mode Not extensively tested but it does work. I tried this mode on land c/w in-built microphone and the results were acceptable. I also tried under water, but without video lights the picture quality was not very good. The best short movie clip in good ambient light was made in about 10m of water in the Maldives of a turtle grazing on some coral.

What's Next ?

I'm going to see if the TIFF files in a variety of situations eg. Macro, UK and tropical waters produce any consistent improvements to the image quality. I'm also going to invest in a tripod and try my hand at time lapse photography.

I would also like to say a continuing thank you to my wife and dive buddy who has to put up with my slow stop/start style of diving when I am diving with the camera….. she does seem to have developed a knack of spotting good subject matter for me to photograph though…..

Steve Parry May 2006

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Photography © Steve Parry 2006

Appendix 1

Camera Setting crib sheet (laminated for field use)

Camera Set Up

Thumbwheels to top of camera

1. Scene — Set to sports mode (dial on top of camera)
2. A/M mode — Set to this mode (dial on top of camera)
3. UK / Night — F 4.7 (Adjust - turn thumbwheel top front of camera when in A/M mode)
4. Blue water — F 8.1 (Adjust- as above)
5. Flash — set to forced on (single lightning symbol right hand rear control circle & verified by single lightning flash on screen)

There are further preferential settings on the top thumbwheel under SETUP.
These do not normally require any adjustment. They are also subject to personal preference.

My camera settings:

Card Format:	Should say execute
IN Format:	Should say execute
LCD Brightness:	Slider bar allows adjustment as required
Adj. BTN set:	Off
Beep Sound:	Off
LCD Confirm:	Off
Auto Power:	Off
Sequential No.	On
Power Save:	Off
Date Settings:	Execute/ set as required (no auto- shift for BST)
Language:	Execute/ English
Video out mode:	PAL (Try NSTC if using AV output to TV if in North America/ Carib)
Step Zoom:	Off
USB connection:	Original

Adj. control button to rear of camera

6. set to ‘auto’ option

Menu control button to rear of camera

Screen 1

7 . Picture/ Quality Size — As required.

8. Focus — Always set to auto focus

9. Photometry — Centre

10. Sharpness — Vivid or select normal if intending to use Photoshop

11. Cont. Mode — Off

Screen 2

12. Auto Bracket — Off

13. Manual exposure — 1/60 or 1/125 (1/125 may cause 'hand palm' icon to appear on display- this is a warning that 'shaky hands' may be a problem at this shutter speed)

14. Interval — Execute / all set to zero's

15. Image with sound — Off

16. Date Imprint — Off (date on file info when downloaded)

Screen 3

17. Exposure Comp. — Only the actual setting is displayed. To change this setting, put camera in auto mode (green camera setting via thumbwheel on top of camera) then press the 'adj' button to the rear of the camera. You can alter the slider to the required setting via the right hand control circle and confirming setting by pressing 'OK' in centre of the control circle.

Set to –0.3 if using an external strobe

Set to 0.7 if no external strobe (try this setting in blue water as external (slave) strobe very rarely fired by camera.

REMEMBER TO TURN TOP THUMBWHEEL BACK TO A/M WHEN EXPOSURE COMP. SET UP AS REQUIRED

18. White Balance — Auto

19. ISO Setting — 100

20. Aperture Setting — Open = low light conditions (UK/night)
Half = shallow UK waters
Min = blue water

21. Colour Depth — Vivid

MACRO PHOTOGRAPHY

Make sure camera zoom facility is set to 'W' (wide) on the slider bar (ie: no zoom lens).
There is a small slider bar icon marked 'W' or 'T' at either end to show position on the screen.

Enable Macro mode (tulip symbol) from the bottom button on the rear control circle.
Macro mode will be confirmed by the appearance of the tulip symbol on the screen.

If you alter certain settings/ switch the camera off etc, the camera will have to be reset to macro mode.

YS-90 Strobe Set Up

Auto setting 2

Auto setting 2 is advised, but check in ambient light at start of dive. For instance, if you stand in a dark room facing a mirror, the strobe only works on auto setting 1. There is a sensor on the camera that measures ambient conditions and decides if a pre-flash will be needed. This camera choice determines if the strobe works in auto 1 or auto 2. Auto 2 always works in the UK but I did find I needed to set to auto 1 on a night dive when in the Maldives.

F Stops

F setting generally 1-2 stops below camera F-stop.

UK/night	Camera = f 4.7 set strobe to f 2
Blue water	Camera = f 8.1 set strobe to f 5.6

Try varying strobe setting either +/- 1 stop if pictures seem under/over exposed

Slave/ TTL Set as slave

The diffuser that comes with the strobe cannot be fitted when the collar that couples the fibre optic cable to the strobe is used. Some experimenting with strobe positioning/ F stop setting is recommended and verifying the results on the screen before moving on is advised.

The strobe is quite powerful and I found pictures could 'white out' due to the white sandy sea bed in the Maldives.